CLAIMS

1. A method for continuous alkali oxygen delignification of digested cellulose pulp and of cellulose pulp that has been washed after digestion, which pulp is stored in a storage tower or pulp chute at essentially atmospheric pressure and that maintains a medium consistency in the range 8-16% and that maintains a kappa value of at least 15 units, preferably a kappa exceeding 20, where the oxygen delignification takes place in a reactor system with several oxygen reactors with a predetermined retention time of the cellulose pulp in the reactor system, where alkali is added to the cellulose pulp in order to obtain an initial pH exceeding 9.0 and where oxygen is added to the cellulose pulp at an amount of 5-50 kg per tonne of pulp at a position before a first oxygen reactor in the reactor system, and where the pulp has a predetermined total retention time greater than 45 minutes in the reactor system c h a r a c t e r i s e d in that, in association with the addition of the necessary chemicals and an initial mixing-in operation for oxygen delignification, the cellulose pulp is placed under pressure in a high pressure section of the reactor system at an initial pressure of greater than 15.0 bar, after which the pulp passes at least two reactor volumes with intermediate remixing positions where the final pressure after the final reactor volume is at least 13 bar at the end of the high pressure section, where the retetion time t_1 is the retention time in a reactor volume before the first remixing position M_1 such that, if the number or high-pressure reactors is X, the retention time is t_1 - t_x for each reactor $R_1 – R_x$ such that $t_1<t_2< \ldots t_x$.

2. The method according to claim 1, c h a r a c t e r i s e d in that the retention times t_1 - t_X in the reactors R_1 - R_X in the high pressure section are expressed as:

   t_{min} = 1 minute for t_1, after which (t_x=2 * t_{x-1}) and T_{max}= X *10 minutes;

   (t_1=1-10, t_2=2-20; t_3=4-30;t_4=8-40 min. etc.),

   where $t_X < t_{X+1}$.

3. The method according to claim 2, c h a r a c t e r i s e d in that oxygen, preferably the major part of the oxygen added for the oxygen stage, is

added to the cellulose pulp immediately after the initial pressure of more than 15.0 bar has been established.

4. The method according to claim 3, c h a r a c t e r i s e d in that the pressure of the pulp is reduced after the high-pressure section to a pressure that lies under 10-12 bar, and the pulp is heated by steam such that the temperature of the pulp is raised by at least 5 °C by the addition of steam, followed by the heated pulp being led to a reactor system in a low pressure section with a retention time that exceeds the retention time in the high pressure section.

5. The method according to claim 4, c h a r a c t e r i s e d in that the remixing positions are constituted by fluidising mixers, either in the form of a fluidising pump, a fluidising restriction, a fluidising mixer or a restriction in the flow that results in a fall in pressure of less than 1 bar.

6. The method according to any one of the preceding claims, c h a r a c t e r i s e d in that a stirrer is present in at least one high pressure reactor, which stirrer acts in the principal part (greater than 50%) of the reactor volume, either in the form of a mechanical stirrer (S) or hydrodynamic stirrers that at least circulate free fluid in the reactor.

7. The method according to any one of the preceding claims, c h a r a c t e r i s e d in that at least one of oxygen and alkali can be added to the cellulose pulp in association with the remixing positions in the high pressure section at an amount that is lower than the amount that is added at the initial mixing-in operation, and in that at least one of oxygen and alkali can be added batchwise at the beginning of the low pressure section.

8. The method according to any one of the preceding claims, c h a r a c t e r i s e d in that the cellulose pulp is dewatered before the oxygen delignification to a higher consistency and in that it is rediluted

before the oxygen delignification to a medium consistency with pure filtrate that has preferably been previously oxidised, and in that alkali in the form of oxidised white liquor is used in the oxygen delignification.

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